

# Glossary

## A

**active storage capacity** the usable reservoir capacity available for seasonal or cyclic water storage. It is gross reservoir capacity minus inactive storage capacity.

**afterbay** a reservoir that regulates fluctuating discharges from a hydroelectric power plant or a pumping plant.

**agricultural drainage** (1) the process of directing excess water away from root zones by natural or artificial means, such as by using a system of drains placed below ground surface level; also called subsurface drainage; (2) the water drained away from irrigated farmland.

**alluvium** unconsolidated soil strata deposited by flowing water.

**anadromous** fish that spend a part of their life cycle in the sea and return to freshwater streams to spawn.

**applied water demand** the quantity of water delivered to the intake of a city's water system or factory, the farm headgate or other point of measurement, or a marsh or other wetland, either directly or by incidental drainage flows. For instream use, it is the portion of the stream flow dedicated to instream use or reserved under the federal or State legislation.

**aquifer** a geologic formation that stores water and yields significant quantities of water to wells or springs.

**arid** a term describing a climate or region in which precipitation is so deficient in quantity or occurs so infrequently that intensive agricultural production is not possible without irrigation.

**artificial recharge** addition of surface water to a groundwater reservoir by human activity, such as putting surface water into spreading basins.

**average annual runoff** for a specified area is the average value of annual runoff volume calculated for a selected period of record, at a specified location, such as a dam or stream gage.

**average year water demand** demand for water under average hydrologic conditions for a defined level of development.

## B

**best management practice (BMP)** a generally accepted practice for some aspect of natural resources management, such as water conservation measures, drainage management measures, or erosion control measures. Most frequently used in this Bulletin to refer to water conservation measures adopted by the California Urban Water Conservation Coalition.

**biota** living organisms of a region, as in a stream or other body of water.

**brackish water** water containing dissolved minerals in amounts that exceed normally acceptable standards for municipal, domestic, and irrigation uses. Considerably less saline than sea water.

**bromide** a salt which naturally occurs in small quantities in sea water; a compound of bromine.

## C

**chaparral** a major vegetation type in California characterized by dense evergreen shrubs with thick, hardened leaves.

**closed basin** a basin whose topography prevents surface outflow of water.

**confined aquifer** a water-bearing subsurface stratum that is bounded above and below by formations of impermeable, or relatively impermeable, soil or rock.

**conjunctive use** the operation of a groundwater basin in combination with a surface water storage and conveyance system. Water is stored in the groundwater basin for later use by intentionally recharging the basin during years of above-average water supply.

## D

**Decision 1485 operating criteria** standards for operating the CVP and SWP under Water Right Decision 1485 for the Sacramento-San Joaquin Delta and Suisun Marsh, adopted by the State Water Resources Control Board in August 1978.

**Decision 1631** a water right decision specifying required Mono Lake levels, adopted by the State Water Resources Control Board in 1994.

**deep percolation** percolation of (irrigation) water through the ground and beyond the lower limit of the root zone of plants into groundwater.

**demand management alternatives** water management programs—such as water conservation or drought rationing—that reduce demand for water.

**dependable supply** the average annual quantity of water that can be delivered during a drought period.

**depletion** the water consumed within a service area and no longer available as a source of supply. For agriculture and wetlands, it is ETAW (and ET of flooded wetlands) plus irrecoverable losses. For urban water use, it is ETAW (water applied to landscaping or home gardens), sewage effluent that flows to a salt sink, and incidental ET losses. For instream use, it is the amount of dedicated flow that reaches a salt sink.

**desalting** a process to reduce the salt concentration of sea water or brackish water.

**detailed analysis unit (DAU)** the smallest study area used by the Department for analyses of water demand and supply. Generally defined by hydrologic

features or boundaries of organized water service agencies. In major agricultural areas, a DAU typically includes 100,000 to 300,000 acres.

**discount rate** the interest rate used to calculate the present value of future benefits and future costs or to convert benefits and costs to a common time basis.

**dissolved organic compounds** carbon-based substances dissolved in water.

**dissolved oxygen (DO)** the amount of oxygen dissolved in water or wastewater, usually expressed in milligrams per liter, parts per million, or percent of saturation.

**distribution uniformity (DU)** a measure of the variation in the amount of water applied to the soil surface throughout an irrigated area, expressed as a percent.

**drainage area** the area of land from which water drains into a river; for example, the Sacramento River Basin, in which all land area drains into the Sacramento River. Also called watershed or river basin.

**drought condition** hydrologic conditions during a defined period when rainfall and runoff are much less than average.

**drought year supply** the average annual supply of a water development system during a defined drought period.

## E

**efficient water management practice (EWMP)** an agricultural water conservation measure, such as those adopted under the MOU regarding water conservation.

**effluent** wastewater or other liquid, treated or in its natural state, flowing from a treatment plant or process.

**environmental water** the water for wetlands, for the instream flow in a major river or in the Bay-Delta, or for a designated wild and scenic river

**estuary** the lower course of a river entering the sea where tidal action meets river flow.

**evapotranspiration (ET)** the quantity of water transpired (given off), retained in plant tissues, and evaporated from plant tissues and surrounding soil surfaces.

**evapotranspiration of applied water (ETAW)** the portion of the total evapotranspiration which is provided by irrigation and landscape watering.

## F

**firm yield** the maximum annual supply from of a water development project under drought conditions, for some specified level of demands.

**forebay** a reservoir at the intake of a pumping plant or power plant to stabilize water levels; also a storage basin for regulating water for percolation into groundwater basins.

**fry** a recently hatched fish.

## G

**gray water** waste water from a household or small commercial establishment. Gray water does not include water from a toilet, kitchen sink, dishwasher, washing machine, or water used for washing diapers.

**gross reservoir capacity** the total storage capacity available in a reservoir for all purposes, from the streambed to the normal maximum operating level. Includes dead (or inactive) storage, but excludes surcharge (water temporarily stored above the elevation of the top of the spillway).

**groundwater** water that occurs beneath the land surface and fills the pore spaces of the alluvium, soil, or rock formation in which it is situated.

**groundwater basin** a groundwater reservoir, defined by an overlying land surface and the underlying aquifers that contain water stored in the reservoir. In some cases, the boundaries of successively deeper aquifers may differ and make it difficult to define the limits of the basin.

**groundwater overdraft** the condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years during which water supply conditions approximate average conditions.

**groundwater recharge** the natural or intentional infiltration of surface water into the zone of saturation (i.e., into groundwater).

**groundwater storage capacity** volume of void space that can be occupied by water in a given volume of a formation, aquifer, or groundwater basin.

**groundwater table** the upper surface of the zone of saturation, in an unconfined aquifer.

## H

**hardpan** a layer of nearly impermeable soil beneath a more permeable soil, formed by natural chemical cementation of the soil particles.

**head ditch** the water supply ditch at the head of an irrigated field.

**hydraulic barrier** a barrier developed in an estuary by release of fresh water from upstream reservoirs to prevent intrusion of seawater into the body of fresh water. Also, a barrier created by injecting fresh water to control seawater intrusion in an aquifer, or created by water injection to control migration of contaminants in an aquifer.

**hydrologic balance** an accounting of all water inflow to, water outflow from, and changes in water storage within a hydrologic unit over a specified period of time.

**hydrologic basin** the drainage area upstream from a given point on a stream.

**hydrologic region** a study area consisting of multiple planning subareas. California is divided into 10 hydrologic regions.

## I

**instream use** use of water within its natural watercourse as specified in an agreement, water rights permit, etc. For example, the use of water for navigation, recreation, fish and wildlife, aesthetics, and scenic enjoyment.

**irrecoverable losses** the water lost to a salt sink or lost by evaporation or evapotranspiration from a conveyance facility or drainage canal, or in fringe areas of cultivated fields.

**irrigated acreage** land area that is irrigated, which is equivalent to total irrigated crop acreage minus the amount of acreage that was multiple-cropped.

**irrigation return flow** applied water that is not transpired, evaporated, or infiltrated into a groundwater basin but that returns to a surface water body.

## L

**land subsidence** the lowering of the natural land surface due to groundwater (or oil and gas) extraction.

**laser land leveling** precision leveling of cultivated fields to improve irrigation efficiency.

**laterals** the part of an irrigation district's delivery system that conveys water from the district's main canals to turnouts for farmers' fields

**leaching** the flushing of salts from the soil by the downward percolation of applied water.

**leaching requirement** the theoretical amount of irrigation water that must pass (leach) through the soil beyond the root zone to keep soil salinity within acceptable levels for sustained crop growth.

**level of development** in a planning study, the practice of holding water demands constant at some specified level so that hydrologic variability can be studied.

## M

**maximum contaminant level (MCL)** the highest drinking water contaminant concentration allowed under federal and State Safe Drinking Water Act regulations.

**moisture stress** a condition of physiological stress in a plant caused by lack of water.

**multipurpose project** a project, usually a reservoir, designed to serve more than one purpose, and whose costs are normally allocated among the different functions it provides. For example, a project that provides water supply, flood control, and generates hydroelectricity.

## N

**National Pollutant Discharge Elimination System (NPDES)** a provision of Section 402 of the federal Clean Water Act that established a permitting system for discharges of waste materials to water courses.

**net water demand (net water use)** the amount of water needed in a water service area to meet all requirements. It is the sum of evapotranspiration of applied water in an area, the irrecoverable losses from the distribution system, and the outflow leaving the service area; does not include reuse of water within a service area.

**nonpoint source** waste water discharge other than from point sources. See also point source.

**nonreimbursable costs** the part of project costs allocated to general statewide or national beneficial purposes and funded from general revenues, rather than by water users.

**normalized demand** the process of adjusting actual water use in a given year to account for unusual events such as dry weather conditions, government price support programs for agriculture, rationing programs, or other unusual conditions.

## O

**overdraft** see *groundwater overdraft*.

## P

**pathogens** viruses, bacteria, or other organisms that cause disease.

**perched groundwater** groundwater supported by a zone of material of low permeability located above an underlying main body of groundwater.

**perennial yield** the maximum quantity of water that can be annually withdrawn from a groundwater basin over a long period of time (during which water supply conditions approximate average conditions) without developing an overdraft condition.

**permeability** the capability of soil or other geologic formations to transmit water.

**phytoplankton** minute plants, such as algae, that live suspended in bodies of water.

**planning subarea (PSA)** an intermediately-sized study area used by the Department, consisting of multiple detailed analysis units.

**point source** a specific site from which wastewater or polluted water is discharged into a water body.

**pollution (of water)** the alteration of the physical, chemical, or biological properties of water by the introduction of any substance into water that adversely affects any beneficial use of water.

**project yield** the water supply attributed to all features of a project, including integrated operation of units that could be operated individually.

**pump lift** the distance between the groundwater table and the overlying land surface.

**pumped storage project** a hydroelectric powerplant and reservoir system using an arrangement whereby water released for generating energy during peak load periods is stored and pumped back into the upper reservoir, usually during periods of reduced power demand.

**pump-generating plant** a plant which can either pump water or generate electricity, depending on the direction of water flow.

## R

**recharge basin** a surface facility constructed to infiltrate surface water into a groundwater basin.

**recycled water** urban wastewater that becomes suitable, as a result of treatment, for a specific beneficial use. Also called reclaimed water. See also *water recycling*.

**return flow** the portion of withdrawn water not consumed by evapotranspiration or system losses which returns to its source or to another body of water.

**reuse** the additional use of previously used water. As used in this report, it is not water that has been recycled for beneficial use at a wastewater treatment plant.

**reverse osmosis** a method to remove salts and other constituents from water by forcing water through membranes.

**riparian** located on the banks of a stream or other body of water. Riparian water rights are rights held by landowners adjacent to a natural waterbody.

**runoff** the volume of surface flow from an area.

## S

**salinity** generally, the concentration of mineral salts dissolved in water. Salinity may be expressed in terms of a concentration or as an electrical conductivity. When describing salinity influenced by seawater, salinity often refers to the concentration of chlorides in the water. See also *total dissolved solids*.

**salinity intrusion** the movement of salt water into a body of fresh water. It can occur in either surface water or groundwater bodies.

**salmonid** fish species belonging to the salmon family, including salmon and trout.

**salt sink** a saline body of water, such as the ocean.

**salt-water barrier** a physical facility or method of operation designed to prevent the intrusion of salt water into a body of fresh water (see hydraulic barrier).

**Seasonal Application Efficiency (SAE)** the sum of ETAW and cultural water requirements divided by applied water.

**seepage** the gradual movement of a fluid into, through, or from a porous medium.

**self-produced water** a water supply (often from wells) developed and used by an individual or entity. Also called “self-supplied water.”

**service area** the geographic area served by a water agency.

**soluble minerals** naturally occurring substances capable of being dissolved.

**spreading basin** see *recharge basin*.

spreading grounds see *recharge basin*.

**supply augmentation alternatives** water management programs—such as reservoir construction or groundwater extraction—that increase supply.

**surface supply** water supply from streams, lakes, and reservoirs.

## T

**tailwater** applied irrigation water that runs off the end of a field. Tailwater is not necessarily lost; it can be collected and reused on the same or adjacent fields.

**tertiary treatment** in wastewater treatment, the additional treatment of effluent beyond that of secondary treatment to obtain higher quality of effluent.

**total dissolved solids (TDS)** a quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution. Usually expressed in milligrams per liter. Abbreviation: TDS. See also *salinity*.

**transpiration** an essential physiological process in which plant tissues give off water vapor to the atmosphere.

**tribalomethane (THM)** a chlorinated halogen compound such as chloroform, carbon tetrachloride or bromoform.

## U

***unimpaired flow*** the flow past a specified point on a natural stream that is unaffected by stream diversion, storage, import, export, return flow, or change in use caused by modifications in land use.

## W

***wastewater*** domestic or municipal sewage or effluent from an industrial process.

***water quality*** description of the chemical, physical, and biological characteristics of water, usually in regard to its suitability for a particular purpose or use.

***water recycling*** the treatment of urban wastewater to a level rendering it suitable for a specific beneficial use.

***water service reliability*** the degree to which a water service system can successfully manage water shortages.

***watershed*** see *drainage basin*.

***water table*** see *groundwater table*.

***water transfers*** marketing arrangements that can include the permanent sale of a water right by the water right holder; a lease of the right to use water from the water right holder; the sale or lease of a contractual right to water supply.

***water year*** a continuous 12-month period for which hydrologic records are compiled and summarized. Different agencies may use different calendar periods for their water years.

